

REMARKS

Applicant would like to thank the Examiner for the substantive review in this case. In the final Office Action dated February 2, 2010, the Office rejected claims 7-12. More specifically:

- Claims 7 and 10-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Japan Patent No. 11-345,732 to Okuda et al. ("Okuda") in view of German Patent No. DE 2,530,312 to Hartwig ("Hartwig") and U.S. Patent No. 6,910,360 to Stjepan et al. ("Stjepan"); and
- Claims 8-9 and 12 were rejected under 35 U.S.C. §103(a) as being obvious over Okuda et al. in view of Hartwig, Stjepan and U.S. Patent No. 5,644,486 to Chang et al. ("Chang").

Independent claim 7 has been amended to further define an embodiment. As recommended by the Examiner, claim 7 has been amended to further define the movement of the pressure head as well as the individual vertical and horizontal wheels. Support for the amendments to claim 7 can be found in the specification as originally published at paragraphs [0023], [0027] and [0028]. Accordingly, no new matter has been added as a result of these amendments.

Upon entry of these amendments, claims 7-12 will remain pending. For the reasons set forth herein below, Applicants request that the §103(a) rejections associated with the pending claims be withdrawn.

Claims 7-12

Independent claim 7 is nonobvious over Okuda in view of Hartwig and Stjepan because the cited references, either alone or in combination, fail to teach or suggest each and every limitation of claim 7. More particularly, the combination of Okuda, Hartwig and Stjepan fails to teach or suggest, among other things, the following limitations of claim 7:

- A pressure head operably connected to the control unit and mounted on a support on which the pressure head pivots between a resting position and a working position, the pressure head having a vertical axle and a horizontal axle;
- At least one vertical wheel mounted on the vertical axle and positioned to accept a conductor material and regulate height and flatness in a coil

formed in the conductor material, wherein the at least one vertical wheel comprises at least one auxiliary horizontal disc positioned such that when the conductor material is fed into the pressure head the conductor material maintains contact with the at least one vertical wheel; and

- At least one horizontal wheel mounted on the horizontal axle positioned to accept the conductor material and position the conductor material on top of a previously formed coil.

Okuda teaches an arrangement for producing a wire coil for electrical equipment. It should again be noted that Applicant is referring to the machine translation of Okuda provided by the Examiner in the Office Action dated October 3, 2008, as is best understood by the Applicant. Okuda provides for a coil producing technique that takes wire from two spools that may be wound at different pressures, combines the wires and winds the two wires into a coil at a constant pressure. *See* Okuda at [0068]. These two wires are combined by vertical and horizontal rollers (items 126 and 127 in the figures) which form a pressure head that is rigidly mounted to a support arm (item 122 in the figures). *See id.* at [0027]. A single hydraulic cylinder (item 124 in the figures) is used to move horizontal roller 126. Once the two wires are combined, a coil is then formed by a coil former (item 81 in the figures), not the vertical and horizontal rollers. Rather, the horizontal and vertical rollers are merely used to combine the two wires. *See id.* at [0029]. Additionally, the Examiner acknowledges that Okuda lacks a teaching of at least one hydraulic cylinder attached to both the vertical and horizontal axles and a control unit, and looks to Hartwig and Stjepan respectively to teach these limitations.

Hartwig discloses an arrangement for pressing the turns of an axial progressive winding coil for electrical equipment. *See* Hartwig at 1:1-2. It should be noted that Applicant is referring to the machine translation of Hartwig provided by the Examiner in the Office Action dated October 3, 2008, as is best understood by Applicant. Hartwig provides for a more compact pressure head by removing the pressure cylinders that provide the force to push the pressure head against the coil to a location away from the head. The cylinders also provide for a constant transfer of pressure to the pressure head, and thus to the coils via a mounting rod. This provides for a more compact pressure head, allowing for more compact coils. *See id.* at 3:9-13. In order to provide this constant pressure, Hartwig rigidly mounts the pressure head to the mounting rod such that the head cannot pivot, as pivoting would result in an unexpected change of pressure as applied at the pressure head. Similarly, as the head of Hartwig cannot pivot, Hartwig cannot

provide a feeder that mounted on the same support as the pressure head which feeds the conductor tangentially to the vertical and horizontal wheels as the wheels cannot rotate about the coil as it is formed. *See id.* at 5:3-7.

The Examiner relies on Hartwig to teach a hydraulic cylinder connected to a control unit (as taught by Stjepan and discussed below) as well as both the horizontal and vertical axes of the pivoting pressure head of Okuda. As discussed above, Okuda fails to disclose a pivoting pressure head having at least one vertical wheel and at least one horizontal wheel positioned such that a conductor material passing there through is formed into a coil. Additionally, Hartwig is silent on the concept of a pivoting pressure head, and thus, provides no teaching for applying a hydraulic cylinder to the horizontal and vertical axes of a pivoting pressure head. As best understood by the disclosure of Hartwig, the hydraulic cylinder is attached to only a single axle. *See id.* at 2:1-6. Thus, at best, the combination of the teachings of Okuda and Hartwig would result in a rigidly mounted pressure head having a hydraulic cylinder attached to either the horizontal or vertical axle, not both as is required by claim 7.

Stjepan teaches an apparatus for making mattress and upholstery spring coils. The apparatus has a wire feeding device and a wire guide adapted to support differing diameters of wire. *See Stjepan* at Abstract. The arrangement of wheels used in the apparatus is limited to a series of horizontal wheels arranged to coil the wires. *See id.* at FIG. 2. The apparatus further includes a controller configured to receive user input and adjust the pressure exerted by the horizontal wheels, thus adjusting the shape and size of the coils produced. *See id.* at 5:33-57. However, similar to Okuda and Hartwig, Stjepan is silent on the concept of a pressure head mounted such that the pressure head pivots around a support. Additionally, Stjepan fails to disclose a hydraulic cylinder connected to horizontal and vertical axes. As such, Stjepan fails to overcome the above described deficiencies of the combination of Okuda and Hartwig.

The Examiner relies on Stjepan to teach a control unit for use in the automation of the coil manufacturing process. The addition of this teaching to the combination of Okuda and Hartwig would result in an apparatus having a rigidly mounted pressure head wherein a hydraulic cylinder is connected to a control unit and either a vertical or a horizontal axle of the pressure head.

In contrast, claim 7 requires a pressure head mounted on a support on which the pressure head pivots from a resting position to a working position. This, along with the claimed

arrangement of the at least one vertical wheel, at least one horizontal wheel, and a hydraulic cylinder connected to both the vertical and horizontal wheels provides a means for the pressure head to produce suitable pressure for forming the coils without any added outside forces acted upon the pressure head by the support. Rather than merely providing a rigidly mounted pressure head having a hydraulic cylinder connected to either the horizontal or vertical axle as is taught by the proposed combination of Okuda, Hartwig and Stjepan, claim 7 requires the pressure head to be mounted on a support such that the pressure head pivots, and wherein at least one hydraulic cylinder is connected to the horizontal and vertical axles such that the pressure exerted by both axles is controlled by the control unit. Thus, the system of claim 7 may regulate the pressure exerted by wheels mounted on the axles during the formation of a coil. None of the cited references, whether considered alone or in combination, suggest such a result.

Accordingly, for at least these reasons, claim 7 is nonobvious over the combination of Okuda in view of Hartwig and Stjepan because the cited references fail to teach or suggest each and every limitation of claim 7. Further, claims 8-12, which depend from and incorporate all of the limitations of claim 7, are likewise nonobvious over the cited references. *See* MPEP §2143.03 (stating that if an independent claim is nonobvious under 35 U.S.C. §103(a), then any claim depending therefrom is nonobvious). Accordingly, Applicant requests that the rejections associated with claims 7-12 be withdrawn.

All of the stated grounds of rejection have been properly traversed, accommodated or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. There being no other rejections or objections, Applicant respectfully requests that the current application be allowed and passed to issue.

If the Examiner believes for any reason that personal communication will expedite prosecution of this application, I invite the Examiner to telephone me directly.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for this Preliminary Amendment, or credit any overpayment, to Deposit Account No. 50-0436.

Respectfully submitted,

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